

### **REMARKS**

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 12-39 are presently active in this case. The present Amendment amends Claims 12 and 15-22 and adds new Claims 23-39 without introducing any new matter.

Claims 12-22 were rejected under 35 U.S.C. §103(a) as unpatentable over Gruner (U.S. Patent Publication No. 2002/0135447) in view of Dausch et al. (U.S. Patent No. 6,359,374, herein "Dausch").

To correct minor formalities and to clarify Applicants' invention, Claims 12 and 15-22 are amended. Since the changes are mainly formal in nature or are supported by Applicants' Specification, the changes are not believed to raise a question of new matter.

To vary the scope of protection recited in the claims, new Claims 23-39 are added. In particular, new independent Claim 25 recites "an approach actuator configured to move said movable contact relative to the fixed contact between an open position and an intermediate position." This feature finds non-limiting support in Applicants' Specification at page 6, lines 11-18 and in corresponding Figure 2. New Claims 23-14 and 26-39 also find non-limiting support in the disclosure as originally filed and in the original claims, and therefore they are not believed to raise a question of new matter.<sup>1</sup>

In response to the rejection of Claims 12-22 under 35 U.S.C. §103(a), Applicants respectfully request reconsideration of this rejection and traverse the rejection, as discussed next.

Briefly recapitulating, Applicants' independent Claim 12 relates to an electric switching device including: one or plural power poles, each pole comprising a movable bridge equipped with at least one movable contact configured to cooperate with at least one

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<sup>1</sup> See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

fixed contact of the pole between open and closed positions; and an approach actuator acting on each movable bridge of the switching device configured to approach and to distance each movable contact and each corresponding fixed contact. Each pole includes *a force actuator* configured to establish contact pressure between each movable contact and each corresponding fixed contact, *after the approach actuator* has brought each movable contact close to each corresponding fixed contact, and configured to disconnect each movable contact and each corresponding fixed contact, without use of a mechanical restoring device. New independent Claim 39 recites similar features in the context of an electric switching device.

As explained in Applicants' Specification from page 2, lines 18 to page 3, line 3 with corresponding Figure 1, Applicants' invention improves upon background electric switches because it can provide a switch of reduced size and simpler design, that consumes less energy and whose contacts wear less quickly. Furthermore, it is possible to ensure that the switching between the fixed and moveable contacts of the poles of a switching device is performed at the moment the alternating electrical current circulating in these poles is zero.

Turning now to the applied references, Gruner discloses a latching magnetic relay assembly including a relay motor with first and second coil bobbins having first and second excitation coils to switch currents of up to 200 Amps.<sup>2</sup> Gruner, however, fails to teach or suggest Applicants' claimed electric switching device. First, Gruner fails to teach or suggest an approach actuator acting on each movable bridge of the switching device configured to approach and to distance each movable contact and each corresponding fixed contact, as claimed. Gruner explicitly teaches that the movement of the actuator drives the first contact element *into contact* with a first pair of contact points,<sup>3</sup> and therefore does not teach or suggest an *approach* actuator. Applicants' new dependent Claim 23 further specifies that "the approach actuator does not contact the movable contact with the fixed contact." Second,

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<sup>2</sup> See Gruner in the Abstract, in Figure 1 and at page 2, paragraph 15.

<sup>3</sup> See Gruner at page 2, paragraph 16, lines 9-11.

and as acknowledged by the outstanding Office Action,<sup>4</sup> Gruner fails to teach or suggest the claimed force actuator configured to establish contact pressure between the movable contact and the fixed contact, after the approach actuator has brought the movable contact close to the fixed contact.

The outstanding Office Action rejects Applicants' Claims 12-22 based on the proposition that Dausch discloses the above feature,<sup>5</sup> and that it would have been obvious to modify Gruner by importing this feature from Dausch to arrive at Applicants' claimed invention. Applicants respectfully submit, however, that Dausch fails to disclose the above feature related to a force actuator configured to establish contact pressure between the movable contact and the fixed contact, after the approach actuator has brought the movable contact close to the fixed contact. Dausch discloses that a piezoelectric actuator selectively deforms the second contact relative to the first contact.<sup>6</sup> Dausch however fails to teach or suggest that an approach actuator has brought the movable contact and the fixed contact close together, and then the force actuator establishes contact pressure.

Therefore, even if the combination of Gruner and Dausch is assumed to be proper, the combination fails to teach every element of the claimed invention. Specifically, the combination fails to teach the claimed force actuator configured to establish contact pressure between the movable contact and the fixed contact, after the approach actuator has brought the movable contact close to the fixed contact. Accordingly, Applicants respectfully traverse, and request reconsideration of, this rejection based on these patents.<sup>7</sup>

Furthermore, there is no evidence for a motivation to modify the teachings from these references so as to arrive at Applicant's claimed inventions. The position that these teachings

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<sup>4</sup> See outstanding Office Action at page 3, lines 20-22.

<sup>5</sup> See outstanding Office Action from page 3, line 23 to page 4, line 6.

<sup>6</sup> See Dausch for example in Claim 1.

<sup>7</sup> See MPEP 2142 stating, as one of the three "basic criteria [that] must be met" in order to establish a *prima facie* case of obviousness, that "the prior art reference (or references when combined) must teach or suggest all the claim limitations," (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

*could* be modified to arrive at the claimed inventions would be insufficient to establish a *prima facie* case of obviousness.<sup>8</sup> While Gruner is concerned with a magnetic relay with copper conductors and contacts to switch currents up to 200 Amps,<sup>9</sup> Dausch uses a piezoelectric thin-film layer with a thickness of 1 to 10µm to move the second contact for a miniature relay.<sup>10</sup> Dausch also describes a cantilever relay structure with a cantilever length between 100µm and a few mm.<sup>11</sup> It is unclear how a thin-film piezo-electric layer with a microscopic cantilever, as taught by Dausch, can contact Gruner's contact terminal assemblies separated by a gap of 1.6 mm width.<sup>12</sup> Accordingly, it is not clear how such modification could be achieved without a substantial reconstruction or redesign of the systems disclosed by these references.<sup>13</sup> Dausch also states that "relays according to the present invention also use less power and can be fabricated in large quantities more efficiently ... compared with discrete bulk relay devices,"<sup>14</sup> and therefore teaches away from Gruner's power relay assembly.

Applicants further respectfully submit that the references Gruder and Dausch, taken individually or in combination, fail to teach or suggest features of the dependent claims. For example, both references fail to teach or suggest the claimed means for measuring a current circulating in each power pole and linked to an electronic control unit configured to control a position of each approach actuator and the corresponding force actuator, as recited in dependent Claim 18. The outstanding Office Action states that "Dausch et al. further

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<sup>8</sup>See MPEP 2143.01 stating that the "fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness"; see also same section stating "[a]lthough a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so,'" (citation omitted).

<sup>9</sup> See Gruner at page 2, paragraph 15 and paragraph 18.

<sup>10</sup> See Dausch at column 5, lines 46-60.

<sup>11</sup> See Dausch at column 8, lines 53-57.

<sup>12</sup> See Gruner at page 2, paragraph 17.

<sup>13</sup> See In re Ratti, 270 F.2d 810, 813, 123 USPQ 349, 352 (reversing an obviousness rejection where the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate.")

<sup>14</sup> See Dausch at column 4, lines 4-7.

discloses the use of a controlled power source for the piezoelectric element.”<sup>15</sup> Dausch merely teaches at column 8, lines 5-20 that a power source 151 is connected to a positive and negative terminal 145, 150 to generate an electrical field in the piezoelectric element.

However, Dausch as well as Gruner fail to teach or suggest means for measuring current circulating in the pole, and also fail to teach or suggest that a position of the approach actuator and force actuator is controlled as a function of the measured current.

Regarding the rejection of dependent Claims 20-22, Applicants respectfully traverse that the method steps would have been necessitated by the product structure of independent Claim 12.<sup>16</sup> The electric switching device of Claim 12 can be operated in ways that are different from the methods recited in Claims 20-22.

Regarding the numerous remarks on alleged “obvious design considerations”<sup>17</sup> in the outstanding Office Action to form the 35 U.S.C. §103(a) rejections of the dependent claims, since MPEP §2141.02 requires that the invention as a whole be considered and alleged “obvious design considerations” stated in the Office Action were applied in the context of a 35 U.S.C. §103 rejection, Applicants respectfully traversed that the claimed features of the respective dependent claims are in fact obvious design considerations. Moreover, regardless of whether or not the features noticed in the outstanding Office Actions are obvious or known, MPEP §2144.03 states that it is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record, as the principal evidence upon which a rejection is based.

Accordingly, Applicant traverses the 35 U.S.C. §103 rejections based on the alleged obvious design considerations stated in the outstanding Office Action for the reason that, without the temporal and structural context by which these features are known to the artisan,

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<sup>15</sup> See the outstanding Office Action at page 4, lines 17-18.

<sup>16</sup> See the outstanding Office Action at page 5, lines 1-2.

<sup>17</sup> See for example the outstanding Office Action, at page 4, lines 9-10.

it is impossible to conclude that it would be obvious for one of ordinary skill in the art at the time of the invention to combine those noticed features with the art of record. Indeed, the context by which these features are allegedly known might itself provide reasons to rebut a *prima facie* case of obviousness.

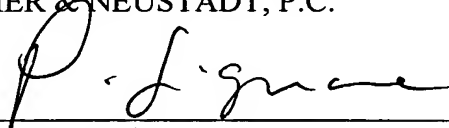
Finally, the applied prior art clearly does not teach the features of new independent Claim 25. In particular, the prior art fails to teach the combination of the approach actuator and the force actuators defined in terms of the open, intermediate and closed positions recited in Claim 25. Therefore, Claims 25-38 are believed to be patentably distinct over the prior art and allowable.

Consequently, in view of the present Amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 12-39 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

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